Space Weather Forecast

Issued on Thursday, 28 July 2022 at 01:02 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of G1/Minor Storm intervals day 3 (30th)

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with an impulsive Common-class flare peaking at 27/1056 UTC, originating from a new region in the southeast quadrant. There are six sunspot regions on the visible disc, two of which are currently unnumbered. However they are all small and simple, with no obvious signs of growth or slightly decaying.

A small filament in the southeast quadrant is showing signs of instability. No lift-off has been observed at present however it is being monitored as any eruption would most likely lead to an Earth-directed CME (Coronal Mass Ejection). No Earth-directed CMEs were observed.

Solar Wind / Geomagnetic Activity: Solar winds, as measured by DSCOVR and ACE at L1, slowly declined through the period from elevated to slightly elevated levels (500km/s to 400 km/s). The strength of the magnetic field carried by the wind was mostly weak but became temporarily moderate at the end of the period, with slightly more marked fluctuations on the important north-south component. Geomagnetic activity was Quiet with a provisional Unsettled interval (kp3) between 27/2100-2400 UTC.

Energetic Particles / Solar Radiation: The count rate of energetic particles remained at background with no solar radiation storms observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Activity is likely to remain Very Low to Low with only a slight chance of moderate-class X-ray flares.

Solar Wind / Geomagnetic Activity: No CMEs have been assessed as Earth-directed. Solar winds are expected to be slow-ambient initially, before the arrival of the fast wind of CH04 in the early UTC hours of day 3 (30th), enhancing solar winds to around 500km/s on days 3 and 4. Geomagnetic activity is forecast to be mainly Quiet with a chance of Unsettled intervals, then to become Unsettled and Active with an outside chance of G1/Minor storms on day 3 (30th).

Energetic Particles / Solar Radiation: The count rate of energetic particles is forecast to remain at background with no solar radiation storms occurring.

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	5	30	5
Strong	G3	No	1	1	2	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	5	5	5	5
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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